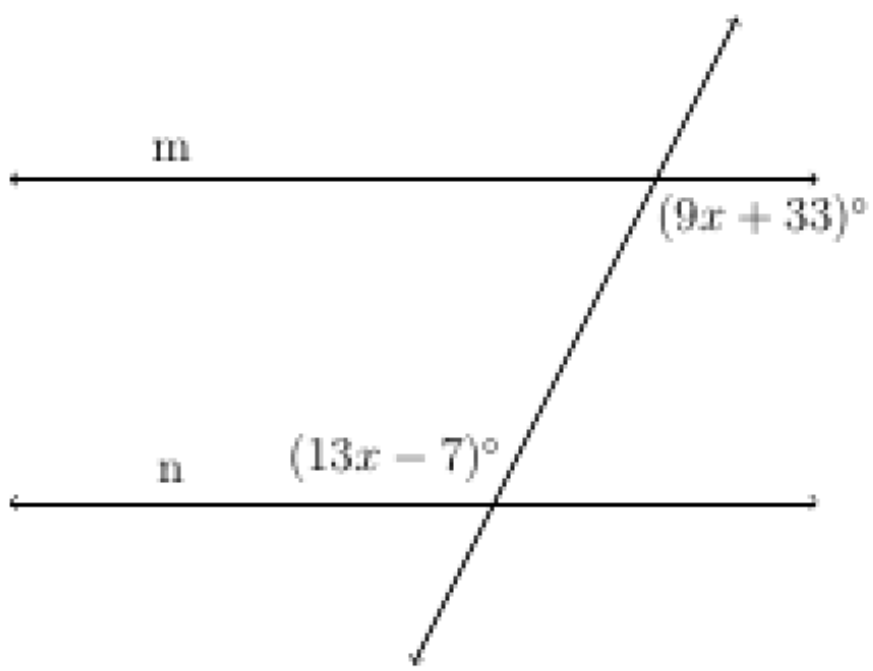
Topic: Angles of transversals

Question: Solve for the variable.

Find x, given: $m \parallel n$.



Answer choices:

A 5

B 6

C 8

D 10

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Solution: D

When parallel lines intersect a transversal, alternate interior angles are congruent. Therefore, we can say

$$13x - 7 = 9x + 33$$

$$4x = 40$$

$$x = 10$$

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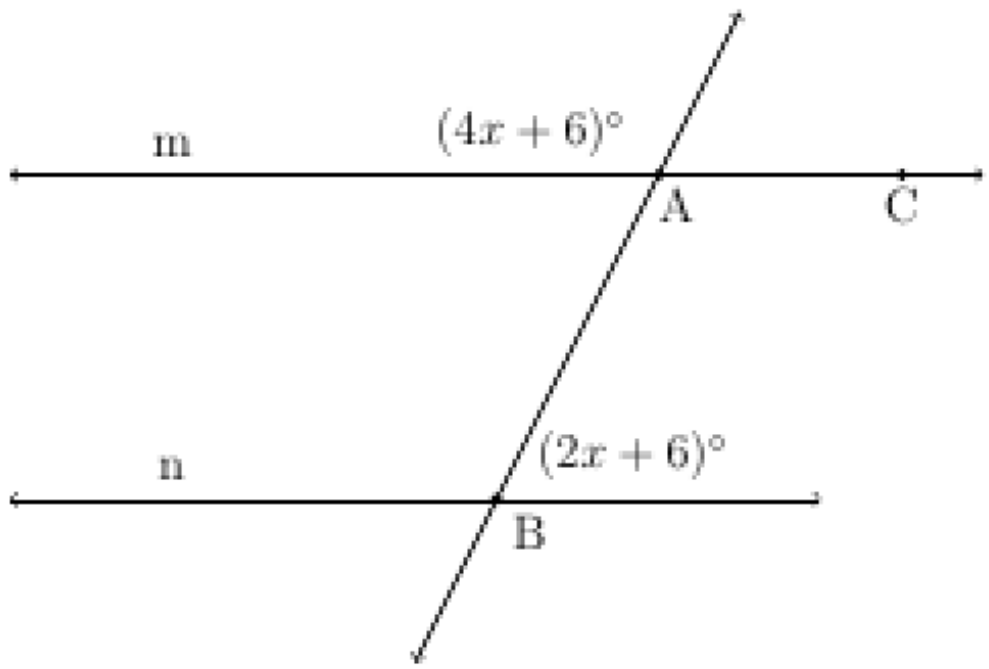
Find x, given: $m \parallel n$.



Answer choices:

A 28

B 32

C 36

D 40

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Solution: A

Vertical angles are congruent, so

$$m\angle BAC = (4x + 6)^\circ$$

When parallel lines intersect a transversal, "same-side" interior angles are supplementary. Therefore,

$$(4x + 6) + (2x + 6) = 180$$

$$6x + 12 = 180$$

$$6x = 168$$

$$x = 28$$

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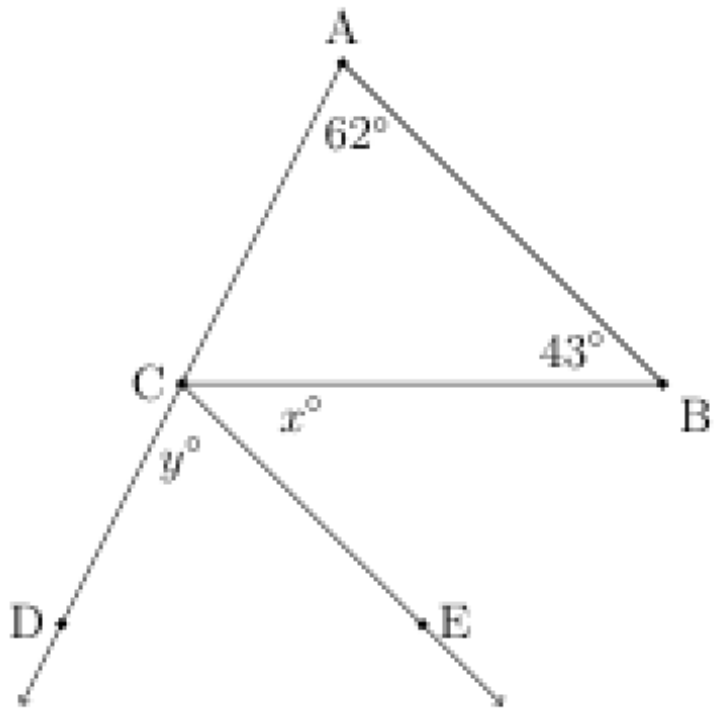
Question: Solve for the indicated value.

Given $\overline{AB} \parallel \overline{CE}$, find the difference between x and y.



Answer choices:

A $11°$

B $15°$

C $19°$

D $21°$

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Solution: C

When parallel lines intersect a transversal, alternate interior angles are congruent. Therefore,

$$m\angle BCE = m\angle ABC$$

$$x = 43^\circ$$

When parallel lines intersect a transversal, corresponding angles are congruent. Therefore,

$$m\angle DCE = m\angle CAB$$

$$y = 62^\circ$$

So we can say

$$y - x = 62^\circ - 43^\circ = 19^\circ$$

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